As shown in FIG. 18, the input 250 and output 252 flow paths are substantially identical to those described above with respect to the first embodiment. The sludge is introduced through the inlet flow path 250 to enter the cavity 362 of the centrifuge arm between the inner tube 326 and the outer tube 328 of the baffle 300. The introduction of the sludge occurs while the centrifuge is rotating about its vertical axis, which places the sludge under the effects of centrifugal force. This in turn then forces the sludge through the input channel 250 and into the gap 324 between the first 326 and second 328 tubes. In steady state operation (i.e., where the centrifuge of the present invention is running at operating speed after any start up) a plug 376 of compacted solids or heavy materials is formed at the distal end of the cavity 362 in each arm.

Please replace the paragraph beginning at page 35, line 16, with the following rewritten paragraph:

The outer end flighting tube 404 and the primary flighting tube 402 are held on the conveyor rod 392 by a fastener 410, such as a nut and washer combination. The outer end of the conveyor rod 392, on each end, is externally threaded. A countersunk cavity 412 is formed in the distal end of the outer flighting tube 404 to allow a washer and a nut to be threaded over the end of the conveyor rod 392. The washer and the nut engage a shoulder formed by the countersunk hole 412 of the outer end flighting tube 404 to urge the outer end flighting tube 404 towards the main shaft 262, which in turn engages the end of the primary flighting tube 402 and urges the primary flighting tube 402 towards the center main shaft 262 to hold the two flighting tubes in place. The outer flighting tube 404 is replaced simply by unscrewing the nut 370, removing the washer, removing the outer end flighting tube 404 and replacing the outer end flighting tube and refastening it thereon.

In the Claims:

Please cancel claims 1 and 2, and insert new claims 3-12 as follows:

3. (New) A centrifuge for decanting lighter material from heavier material from a mixture of initial material, the centrifuge comprising:

a housing including a central body, said central body defining an axis;

a hollow arm extending from said central body, said arm including a first end attached to said central body, and a second end extending away from said central body, said hollow arm defining a chamber;

a baffle attached to said central body and extending into said chamber, said baffle defining a flow path between said concentric tube walls within said chamber;

said flow path including a first exit path for guiding said lighter material out of said housing and a second exit path for guiding said heavier material through said housing; and

an entrance path for receiving the mixture of initial material, said entrance path formed in said housing and communicating with said flow path.

4. (New) The centrifuge of claim 3, further comprising:

a top collar and a bottom collar; and

a frame supporting said housing for rotation of said arm within said frame, said frame coupled to said housing at said top collar and at said bottom collar.

5. (New) The centrifuge of claim 4, further comprising:

a bearing engaging said top collar between said frame and said housing.

6. (New) The centrifuge of claim 3, further comprising:

a drive motor for providing rotational motion; and

a ring gear coupled to said housing for engagement with said drive motor, said ring gear adapted to convert rotational motion of said drive motor to rotations of said housing within said frame.

7. (New) The centrifuge of claim 3, wherein said chamber has an inner portion and an outer portion and wherein said baffle defines concentric tube walls where said concentric tube walls become progressively shorter from said inner portion of said chamber to said outer portion of said chamber.

8. (New) A method for separating lighter material from heavier material from a mixture of initial material, the method comprising the steps of:

providing a rotatable centrifuge including at least two opposing arms rotatable about an axis, each arm including a distal end relative to said axis and an inner and outer radial location;

defining a flow path between concentric tube walls within said centrifuge, said flow path in fluid communication with a fluid exit path for lighter material, and wherein said flow path's direction is from said inner radial location toward said outer radial location;

providing for introducing said initial material into said centrifuge;

rotating said centrifuge about said axis to apply a centrifugal force on said initial material; and

providing for forming plugs in said distal ends of said arms, said plugs formed of the heavier material as the centrifuge rotates.

9. (New) The method of claim 8, wherein said step of defining a flow path with said centrifuge, further comprises:

providing a set of concentric tubes including alternating lengths within each of said arms;

providing an opening in every other tube of each of said set of concentric tubes, said opening adapted to communicate fluid between the tubes;

fluidly coupling the fluid exit path to an area exterior to the outermost tube of said set of concentric tubes, so that as the centrifuges rotate, the lighter material exit the arms through the exit path.

10. (New) The method of claim 8 further comprising:

providing an interior tube with each of said arms, said interior tube adapted to engage said plugs and providing a solid exit pathway for the heavier material;

removing portions of said plugs from said arms through the interior tube at rate proportional to a rotation rate established by said rotating step.

11. (New) The method of claim 8, further comprising:

providing a basin for collecting said lighter materials from said flow path;

collecting said lighter materials in said basin as the centrifuge rotates.

12. (New) The method of claim 8, wherein said plugs at least partially define the flow path.